



5-27-04

2653/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application

Inventor(s): Joanne P. Culver, Thomas F. Rust
Appln. No.: 09/465,592
Confirm. No.: 9065
Filed: December 17, 1999
Title: MOLECULAR MEMORY MEDIUM AND
MOLECULAR MEMORY INTEGRATED
CIRCUIT

PATENT APPLICATION

Art Unit: 2653
Examiner: Kim Kwok Chu

Customer No. 23910

RECEIVED

JUN 01 2004

Technology Center 2600

CERTIFICATE OF MAILING BY "EXPRESS MAIL"
UNDER 37 C.F.R. §1.10

"Express Mail" mailing label number: EV442643130US
Date of Mailing: May 26, 2004

I hereby certify that this correspondence is being deposited with the United States Postal Service, utilizing the "Express Mail Post Office to Addressee" service addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313 and mailed on the above Date of Mailing with the above "Express Mail" mailing label number.

(Signature)

Tina Galdos

Signature Date: May 26, 2004

SIXTH INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.56

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

It is requested that the information identified in this statement be considered by the Examiner and made of record in the above-identified application. This statement is not intended to represent that a search has been made or that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56. If this is a continuation, divisional or continuation-in-part application, it is understood that the Examiner will consider all information which was considered by the Office in a parent application. MPEP §609. Such information therefore is not listed herein unless it is desired that the information be printed on a patent issuing from the subject application.

Enclosed with this statement are the following:

- ✓ Form PTO-1449. The Examiner is requested to initial the form and return it to the undersigned in accordance with M.P.E.P. §609.

05/28/2004 CNGUYEN 00000034 061325 09465592

01 FC:1806 180.00 DA

— The present application is being/was filed after June 30, 2003. In accordance with the pre-official gazette waiver of 37 CFR 1.98 (a)(2)(i) posted at: pac/dapp/opla/preognotice/idswouscopies.htm, copies of cited U.S. patents and publications are not enclosed. However, copies of cited foreign patent documents and non-patent literature are enclosed in accordance with 37 CFR 1.98(a)(2), as still required, except for those items designated by an asterisk (*), which were previously submitted by the applicant in a parent application, from which benefit under 35 U.S.C. § 120 is claimed, with an *Information Disclosure Statement* submitted in the parent application which complies with the September 8, 2000 or subsequent revision of 37 C.F.R. § 1.98(a-c), as allowed under 37 C.F.R. § 1.98(d)(1).

✓ The present application was filed prior to June 30, 2003. A copy of each cited document as required by 37 C.F.R. § 1.98 is enclosed, except for those items designated by an asterisk (*), which were previously submitted by the applicant in a parent application, from which benefit under 35 U.S.C. § 120 is claimed, with an *Information Disclosure Statement* submitted in the parent application which complies with the September 8, 2000 or subsequent revision of 37 C.F.R. § 1.98(a-c), as allowed under 37 C.F.R. § 1.98(d)(1).

— If any of the cited/submitted documents is in a foreign language, a concise explanation of relevance is provided pursuant to 37 C.F.R. § 1.98(a)(3)(i). For foreign language documents cited in a search report by a foreign patent office, the requirement for a concise explanation of relevance is satisfied by the submission herewith of an English language version of the search report. MPEP § 609A(3). If a written English-language translation of a non-English language document, or portion thereof, is within the possession, custody or control of, or is readily available to any individual designated in § 1.56(c), a copy of the translation accompanies this statement, 37 C.F.R. § 1.98(a)(3)(ii), and satisfies the requirement for a concise explanation of relevance, MPEP § 609A(3).

— ***PTA Statement under 37 C.F.R. § 1.704(d).*** Each item of information contained in the *Information Disclosure Statement* was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the *Information Disclosure Statement*.

This statement should be considered because:

— **37 C.F.R. § 1.97(b).** This statement qualifies under 37 C.F.R. § 1.97, subsection (b) because:

- (1) It is being filed within three months of the filing date of an application other than a continued prosecution application under § 1.53(d);
-- OR --
- (2) It is being filed within 3 months of entry of a national stage;
-- OR --
- (3) It is being filed before the mailing date of the first Office Action on the merits,
-- OR --
- (4) It is being filed before the mailing date of the first Office Action after the filing of a Request for Continued Examination under 37 C.F.R. § 1.114.

✓ **37 C.F.R. § 1.97(c).** Although it may not qualify under subsection (b), this statement qualifies under 37 C.F.R. § 1.97, subsection (c) because:

- (1) It is being filed before the mailing date of a FINAL Office Action, a Notice of Allowance, or an action that otherwise closes prosecution in the subject application, whichever occurs first.

-- AND (check at least one of the following) --

- ___ (1) It is accompanied by a STATEMENT as set forth in 37 C.F.R. §1.97(e).

-- OR --

- ✓ (2) It is accompanied by the \$180 fee set forth in 37 C.F.R. §1.17(p).

___ 37 C.F.R. §1.97(d). Although it may not qualify under subsection (b) or (c), this statement qualifies under 37 C.F.R. §1.97, subsection (d) because:

- (1) It is being filed on or before payment of the Issue Fee;

-- AND --

- (2) It is accompanied by a STATEMENT as set forth in 37 C.F.R. §1.97(e);

-- AND --

- (3) It is accompanied by the \$180 fee set forth in 37 C.F.R. §1.17(p).


✓ **The Commissioner is hereby authorized to charge \$180.00 from** Deposit Account No. 06-1325 for filing fee. A duplicate copy of this authorization is enclosed

✓ **Fee Authorization.** The Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Account No. 06-1325. A duplicate copy of this authorization is enclosed.

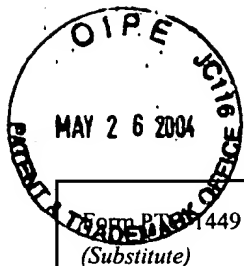
Respectfully submitted,

FLIESLER MEYER LLP

Date: 5/26/04

By: 
Michael L. Robbins
Reg. No. 54,774

FLIESLER MEYER LLP
Four Embarcadero Center, Fourth Floor
San Francisco, California 94111-4156
Telephone (415) 362-3800



Sheet ____ of ____

5,097,443 (Substitute) Information Disclosure Statement BY APPLICANT (Use several sheets if necessary)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	Attorney Docket Number LAZE-01000US0 SRM/MLR	Serial/Patent Number 09/465,592
		RECEIVED JUN 01 2004 Technology Center 2000	
	Filing/Issue Date 12/17/1999	Group Art Unit 2653	

U.S. PATENTS

Examiner Initial		Patent Number	Issue Date	First Named Inventor	Class	Subclass	Filing Date
	1	5,097,443	03/17/92	Kaneko et al.	365	153	03/28/90
	2	5,335,197	08/02/94	Kaneko et al.	365	153	12/10/91
	3	5,389,475	02/14/95	Yanagisawa et al.	430	019	06/18/92
	4	5,446,684	08/29/95	Kaneko et al.	365	046	05/10/94
	5	5,471,458	11/28/95	Oguchi et al.	369	126	09/08/93
	6	5,557,596	09/17/96	Gibson et al.	369	101	07/12/95
	7	5,751,685	05/12/98	Yi	369	126	05/10/96
	8	5,778,134	07/07/98	Sakai et al.	386	046	09/03/96
	9	5,848,077	12/08/98	Kamae et al.	371	053	12/08/95
	10	5,953,306	09/14/99	Yi	369	126	04/25/97
	11	6,275,410 B1	08/14/2001	Morford	365	151	11/09/2000
	12	6,507,552 B2	01/14/2003	Gibson	369	126	12/01/2000
	13	6,522,566 B2	02/18/2003	Carter	365	118	12/01/2000
	14	6,542,400 B2	04/01/2003	Chen et al.	365	151	03/27/2001

U.S. PATENT PUBLICATIONS

Examiner Initial		Patent Application Publication Number	Publication Date	Applicant
	15	US 2002/0110074 A1	08/15/2002	Gibson
	16	US 2002/0135917 A1	09/26/2002	Davidson
	17	US 2003/0007443 A1	01/09/2003	Nickel



U.S. PATENT PUBLICATIONS

Examiner Initial		Patent Application Publication Number	Publication Date	Applicant
	18	US 2003/0081532 A1	05/01/2003	Gibson
	19	US 2003/0185139 A1	10/02/2003	Ives
	20	US 2003/0189200 A1	10/09/2003	Lee et al.

RECEIVED

JUN 01 2004

Technology Center 2600

PENDING U.S. PATENT APPLICATIONS

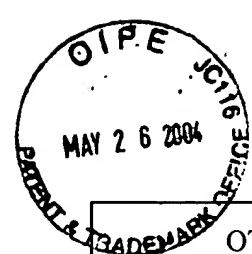
Examiner Initial		Application Number	Filing Date	First Named Inventor	Petition to Expunge? Yes No

FOREIGN PATENT DOCUMENTS

Examiner Initial		Document Number	Publication Date	Country	Class	Subclass	Translation Yes No	
	21	WO 96/11472 ✓	04/18/96	PCT				
	22	JP3295043 ✓	12/26/91	JAPAN			X	
	23	JP3295044 ✓	12/26/91	JAPAN			X	
	24	JP4159636 ✓	06/02/92	JAPAN			X	

OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)

	25	<i>BO HONG, Exploring the Usage of MEMS-based Storage as Metadata Storage and Disk Cache in Storage Hierarchy</i> , Storage Systems Research Center, Jack Baskin School of Engineering, University of California at Santa Cruz http://www.cse.ucsc.edu/~hongbo/publications/mems-metadata.pdf						
	26	<i>SUMIO HOSAKA, HAJIME KOYANAGI AND ATSUSHI KIKUKAWA</i> , Nanometer Recording on Graphite and Si Substrate Using an Atomic Force Microscope in Air, Japan Journal of Applied Physics, Volume 32 (1993) pp. L464-467, Part 2, No. 3B, March 15, 1993, Central Research Laboratory, Hitachi Limited, Kokubunji, Tokyo 185						
	27	<i>ATSUSHI KIKUKAWA, SUMIO HOSAKA, YUKIO HONDA¹ and RYO IMURA</i> , Phase-Controlled Scanning Force Microscope, Japanese Journal of Applied Physics, Volume 33 (1994) pp. L1286-L1288, Part 2, No. 9A, September 1, 1994, Advanced Research Laboratory, Hitachi Limited, 1-280 Higashi-koigakubo, Kokubunji-shi, Tokyo 185, 'Central Research Laboratory, Hitachi Limited, 1-280 Higashi-koigakubo, Kokubunji-shi, Tokyo 185						



OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)

28	✓	WILLIAM P. KING, DANIEL A. FLETCHER and Y. SUNGTAEK JU, Nanometer-Scale Thermal Processing for Advanced Manufacturing (YIP '96), Office of Naval Research Annual Grant Report, First Annual Report: May 1, 1996 - April 30, 1997, pp. 1 - 8
29	✓	T. C. REILEY, T.R. ALBRECHT, D. W. ALBRECHT, K. KUROKI and M. AOYAGI, A Micro Hard Disk Drive, I.B.M. - Almaden Research Center, I.B.M. Storage System Division, Electrochemical Society Proceeding, Volume 98-20, pp. 10 - 18
30	✓	SEIJI HEIKI, YASUO WADA and TOMIHIRO HASHIZUME, Correlation Between Tip-Apex Shape and Surface Modification by Scanning Tunneling Microscopy, Journal of Applied Physics, Vol. 86, No. 8, pp. 4220 - 4224
31	✓	MICHAEL BROOKS, Hole in One, New Scientist, March 27, 1999, pp. 46 - 48
32	✓	H. JONATHON MAMIN, ROBERT P. RIED, BRUCE D. TERRIS and DANIEL RUGAR, High-Density Data Storage Based on the Atomic Force Microscope, Proceeding of the IEEE, Volume 87, No. 6, June 1999, pp. 1014 - 1027
33	✓	STEVEN W. SCHLOSSER, JOHN LINWOOD GRIFFIN, DAVID F. NAGLE, AND GREGORY R. GANER, Filling the Memory Access Gap: A Case for On-Chip Magnetic Storage, School of Computer Science, Carnegie Mellon University, November 1999
34	✓	STEVEN W. SCHLOSSER, JOHN LINWOOD GRIFFIN, DAVID F. NAGLE and GREGORY R. GANGER, Carnegie Mellon University, Designing Computer Systems with MEMS-Based Storage, 9 th International Conference on Architectural Support for Programming Languages and Operating Systems, 2000
35	✓	S. HOSAKA, K. ETOH, A. KIKUKAWA AND H. KOYANAGI, Megahertz Silicon Atomic Force Microscopy (AFM) Cantilever and High-Speed Readout in AFM-Based Recording, Journal of Vacuum Science Technology, Vol 18, No. 1, January/February 2000, pp. 94 - 99
36	✓	ROBERT P. RIED, Air-Bearing Sliders and Plane-Plane-Concave Tips for Atomic Force Microscope Cantilevers, Journal of Microelectromechanical Systems, Volume 9, No. 1, March 2000, pp. 52 - 57
37	✓	L. RICHARD CARLEY, GREGORY R. GANGER and DAVID F. NAGLE, Mems-Based Integrated-Circuit Mass-Storage Systems, Communications of the ACM, Volume 43, No., 11, November 2000, pp. 73 - 80
38	✓	R. B. ZMOOD, L. QIN, D. K. SOOD, T. VINAY and D. MEYRICK, SCHOOL OF ELECTRICAL AND Computer System Engineering, Royal Melbourne Institute of Technology, Melbourne, Victoria 3000, Australia, Magnetic MEMS Used in Smart Structures Which Exploit Magnetic Materials Properties, Smart Structures and Devices, Proceeding of the SPIE, Volume 4235, 2001, pp. 173 - 187
39	✓	MICHAEL GROSS, Small is Great!, New Scientist, July 14, 2001, pp. 1 - 4
40	✓	G. CHERUBINI, T. ANTONAKOPOULOS, P. BACHTOLD, G. K. BINNIG, M. DESPONT, U. DRECHSLER, A. DHOLAKIA, U. DURIG, E. ELEFThERIOU, B. GOTSMANN, W. HABERLE, M. A. LANTZ, T. LOELIGER, H. POZIDIS, H. E. ROTHUIZEN, R. STUTZ AND P. VETTIGER, I.B.M. Research, Zurich Research Laboratory, The Millipede, a Very Dense, Highly Parallel Scanning-Probe Data-Storage System, ESSCIRC 2002, pp. 121 - 125
41	✓	SATOSHI KAWAMURA, Electronics Device Division, Hitachi Maxell, Limited, Coil on Chip RFID System by Super EF2 Technology, Nippon Oyo Jiki Gakkai Kenkyukai Shiryō, Vol. 123, pp. 21 - 25
42	✓	Molecular Chip Patent, Poptronics, Vol. 3, No. 5, May 2002, pp. 11 - 12
43	✓	KENNETH J. KORANE, A King-Size Future for Nanosize Machines, Machine Design Vol 74, No. 18, September 19, 2002, pp. 88 - 94

RECEIVED

JUN 01 2004



Sheet ____ of ____

OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)		
	44	MUSTAFA UYSAL, ARIF MERCHANT, GUILLERMO A. ALVAREZ, Hewlett Packard Laboratories, Using MEMs-Based Storage in Disk Arrays, Proceedings of FAST '03: 2 nd USENIX Conference on File and Storage Technologies, USENIX Association, pp. 89 - 101
Examiner		Date Considered
<p>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>		
<p>*1 = Copy not submitted because it was submitted in prior application SN __ / ____, filed ____, 20 __, relied on under 35 USC §120.</p>		
<p>*2 = Copy not submitted because it was submitted in prior application SN __ / ____, filed ____, 20 __, relied on under 35 USC §120.</p>		

RECEIVED

JUN 01 2004

Technology Center 2600